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# Angola Seed Recovery III Quarterly Report

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# List of Acronyms

| | |
|---|---|
| **CDRA** | **Consortium for Developmental Relief in Angola** |
| **CRS** | **Catholic Relief Services** |
| **DRP** | **Development Relief Program** |
| **FAO** | **Food and Agriculture Organization** |
| **FSV** | **Farmer Selected Varieties** |
| **IARC** | **International Agricultural Research Centres** |
| **IDP(s)** | **Internally Displaced Person(s)** |
| **IDA** | **Institute for Agrarian Development** |
| **IIA** | **Instituto de Investigação Agrária (Agronomic Research Institute)** |
| **MINADER** | **Ministry of Agriculture and Rural Development** |
| **NGO** | **Non-Governmental Organization** |
| **SENSE** | **Servico Nacional de Sementes (National Seed Service)** |
| **SCUS** | **Save the Children US** |
| **SRP II** | **Seed Recovery Program (Phase II)** |
| **UN** | **United Nations** |
| **WFP** | **World Food Program** |
| **WVA** | **World Vision Angola** |

# I. Program Overview and Performance

The quarter was marked by the successful harvest, grading, reception of seed at the warehouse, storage and processing and packaging of the seed crop. The other major activity was the start of the distribution of the seeds produced to returning farmers in time for the 2004/05 rainy season. A total of 1,732 hectares of maize seed production contracted with 38 seed multipliers for the 2003/04 growing season resulted in the production of 3,135.926 Mt of certified maize seed and standard bean seed (95% of target). The plan is for seed distributions to 150,134 recently returned small-holder producers in the provinces of Huambo (123,000), Northern Huila, Kwanza Sul and Bié (113% target).

A total of 2,744.7 Mt of maize seed (2,685.8 Mt certified seed plus 58.9 Mt of basic seed) and 470.375 Mt of bean seed (450.126 Mt of standard seed, 11.75 Mt of certified seed and 8.5 Mt of basic seed) has been produced this season. The tonnage of maize seed was slightly less than expected as a result of unusually high rainfall during the growing season. Basic seed production at Chianga was markedly reduced as a result of the early end of the rains, but quantities are sufficient to meet requirements for the coming season. A total of 2.75 hectares of Irish potato multiplication has been harvested. The 7.3 Mt of tubers produced will be used for another cycle of multiplication with 4.1 Mt already distributed to members of farmers associations for seed increase and the remaining 3.2 Mt reserved for planting next January/February.

A total of 129 training sessions and 30 farmer field days were conducted that included the themes of nursery installation and care, transplanting, use of organic/inorganic fertilizers and nutritional/commercial value of vegetable crops. A total of 5,453 farmers (50% women) attended these training sessions and 2,394 farmers (60% women) attended farmer field days. Farmers groups throughout the target municipalities of Londuimbali, Bailundo and Huambo installed a total of 33 demonstration plots showing various aspects of production of various vegetable crops.

World Vision continued to work to develop seed systems that exploit the comparative advantages of the different participants needed to develop, multiply, process, store, market, and ensure quality of seed. In these processes, farmers are important in farmer-to-farmer seed exchange; Seed Co as a formal seed company to introduce new varieties and innovation; seed associations to represent industry interests; and the Institute for Agronomic Investigation, SENSE Seed Services and the Institute for Agrarian Development as government institutions to provide an enabling framework for the seed industry.

The program obtained the active involvement of Seed Co to contribute to the creation of a national commercial seed industry in Angola, as it has done in several other countries in Sub-Saharan Africa. Seed Co technicians made regular visits from Zimbabwe and Botswana. Seed Co involvement will allow for a smooth transition for rural seed producers to Seed Co contracting for the 2004/05 rainy season.

The Logical Framework in Attachment 1 summarizes progress towards targets over the reporting period.

## II. Background

World Vision, in partnership with the Institute for Agronomic Investigation (IIA) and Institute for Agrarian Development (IDA) is multiplying seed or planting material of improved crop varieties. This program is implemented with the support of USAID and ChevronTexaco Sustainable Development Company, a wholly owned subsidiary of ChevronTexaco (CTSDC).

ChevronTexaco, whose wholly owned subsidiary company Cabinda Gulf Oil Company Limited has operated in Angola since the 1950s, has been one of the largest foreign investors in the country. With the ending of the war, and the opening up of areas beyond the coast that were previously off limits, ChevronTexaco decided to expand their ongoing community programs in the country that would have a meaningful impact on the lives of Angolans recovering from their decades of strife.

After considerable research and discussion with key stakeholders, ChevronTexaco initiated a major new program, which is called the Angola Partnership Initiative (API). The ChevronTexaco Sustainable Development Company ("CTSDC"), was formed to implement API. The mission of API is to build human capacity with a focus on the development of small and medium-enterprises. The four pillars of the program, or areas of intervention, are to strengthen the supply of vocational training; expand the supply of micro-credit; introduce business development services; and, to work toward strengthening the enabling environment. In addition, the company wanted to build on the principle of "partnership" by seeking to create new alliances with like-minded institutions in order to leverage capabilities and funding. Therefore, partnership agreements have been signed with the United States Agency for International Development (USAID) and the United National Development Program (UNDP) with a combined goal to raise $50 million to support this initiative and additional partnerships and alliances are under discussion. ChevronTexaco has committed an overall amount of $25 million to support this effort.

OFDA supported World Visions *Seeds of Freedom Program* during the late 1990s. The first phase of *Angola Seed Recovery* in 2002 produced over 100 MT seed and benefited 10,000 families with farmer selected improved crop varieties. During 2003 the program increased access to improved varieties of maize, bean and groundnut by producing and distributing a total of 2,155MT of seed. A total of 104,044 resettling smallholder families received seeds in the provinces of Huambo, Malange, Benguela, Huila, Kwanza Sul and Bié.

# III. Progress towards Project Goal and Objectives

The overall program goal is:

> *Increased food security and enhanced productive capability of smallholder farmers in the central highlands of Angola.*

The expected results are:

R1) Increased farmers' access to seeds and planting material of improved, higher yielding varieties for expanded farming systems for population resettlement over the 2004/05 agricultural seasons.

R2) Expanded community seed and planting material multiplication systems.

R3) Rural Seed Production Enterprises are capable of responding to the national demand for certified seed with basic seed production at Chianga Field Station.

R4) Commercial seed companies are able to respond to future demands for the supply of certified seed of improved crop varieties for the central highlands of Angola.

## A. Successes Achieved by Areas of Activity

**R 1) Increased farmers' access to seeds and planting material of improved, higher yielding varieties for expanded farming systems for population resettlement over the 2004/05 agricultural seasons.**

As graphically demonstrated in the previous quarterly report, the season had abnormal rainfall, which significantly affected the production of both the maize and the bean crops.

The harvest results have confirmed the previous observation on beans as the crop was nearly a total failure, while the maize crop turned out less well than initially anticipated. Two large growers and several small growers had disastrous results that resulted in a loss of over 300 tons of expected production. Consequently, ASR staff revised the reasonably expected tonnage available to 2700 Mt or 18 kg of seed per recipient family. The reduction resulted in distribution of 18 not 21 kg per family. The three kg reduction from the intended 21 kg will not significantly affect establishment of food security of returnee families, and the 2700 tons of seed was acquired.

Certified Maize Seed

The ASR has purchased 2,535.1 Mt of SAM3 and 150.7 Mt of Branco Redondo from contracted seed producers for distribution. The total tonnage of seed is 2685.8 Mt (or 92.6%) of the certified seed production target. The 150.7 Mt of Branco Redondo was purchased to replace SAM3 that was not delivered as a result of disputes between

partners in three associations. Branco Redondo is a white grained semi flint variety with modest yielding capacity that is popular with growers and was available from three of our contracted seed producers. An analysis of the final production figures is presented in Table 1 below. The Table does not include the 150.7 Mt of Branco Redondo, but does include 58.9 Mt of SAM3 and ZM521 purchased under contract and used as basic seed. The total tonnage is 2594 Mt.

**Table 1. Analysis of certified maize seed production for the 2003/2004 Season**

| Producer | PRODUCTION | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Contract Target Met (95-101%) | | | | Contract Target < 30% | | | |
| | Number | Contract tons | Tonnage produced | % of contract | Number | Contract tons | Tonnage produced | % of contract |
| OLD | 15 | 2249 | 2282.7 | 101.5 | 5 | 538 | 97.9 | 18.2 |
| NEW | 4 | 164 | 156.1 | 95.2 | 8 | 212 | 57.3 | 27.1 |
| TOTAL | 19 | 2413 | 2438.8 | 101.1 | 13 | 750 | 155.2 | 20.7 |

Does not include 150.7 Mt of Branco Redondo

The following points can be drawn from the above Table:

1. Three out of four experienced producers substantially met their contracts.
2. One out of three new producers substantially meant their contracts
3. Experienced producers tended to produce surplus to their contract.
4. New producers that were successful did well, but generally did not meet contracted amounts.
5. The original target production was not realized due to the failure of 5 experienced producers.

The failure of the five experienced growers was due to three causes. In the first instance, two growers failed because of the adverse weather, while two others failed because associates failed to deliver maize that had been produced due to internal disputes within the group. The fifth grower had failed the year before due to weak field management and failed again this year for the same reason; he is no longer a contract grower. New growers most commonly failed due to poor management that was complicated this past year by abnormal rainfall. Of the 13 growers that failed this year, only five were offered contracts for the coming season. These five were retained since it appeared that weather problems, and not management problems, were the major factor contributing to their poor performance.

Certified Bean Seed

A very small amount of bean seed, 11.75 Mt, was produced by 4 seed producers. The other 6 producers with contracts delivered no seed. The seed received was only 16.1 percent of the anticipated production of 72.8 Mt and was divided between Manteiga, 4.7 Mt, and A286, 7.05 Mt. The large-scale bean production was, to say the least, a disappointment and was the direct result of the early termination of the rains in March. Only one producer successfully fulfilled his contract, and he was able to do so because he had planted on a field that could be irrigated.

Standard Bean Seed

The Seed Recovery Program had contracted a number of producers to purchase bean seed that was planted by small holders in the first part 2003. The seed was then hand selected to ensure that the seed was of the variety specified. This hand selected seed was then inspected by WVA technicians and, if found acceptable, the seed was sent to the WV warehouse. As of June 30, a total of 272.5 Mt of beans (68% of target) had been delivered to the warehouse.

The buying process continued during the second bean production season, with purchase occurring from May to September, to supplement the contracted bean seed production. The buying process was accelerated when the failure of the large-scale producers became apparent. The bean seed was purchased from growers who had access to irrigation and were therefore independent of the vagaries of the late season rainfall. The second season buying program was very successful and a total of 276.226 Mt of beans were purchased. The total tonnage of bean seed purchased was 450.126 Mt, 173.9 Mt from the first buying season and 276.226 Mt from the second buying season.

**IR 1.2 Distribution of seed of improved crop varieties to 150,000 families for 2004/2005 season.**

A small Nacas distribution of 5 kg of maize and 2 kg of bean seed was made in August to 20,000 families. The maize seed was purchased with WV private funds and recipients of seed returned the bean seed from the 2003/2004 distributions.

Plans were developed in July for the distribution of seed kits consisting of 18 kgs of maize seed and 3 kg of bean seed to 150,000 recipient families in five provinces. The distributions started in late August and will be completed in late October. The distributions will be reported in full in the October to December quarterly report. The distribution plan is presented below in Table 2. The plan shows that 27,000 kits will be sent to CDRA partners in the provinces of Huila, Benguela, Kwanza Sul and Bié, while the remaining 123,000 kits will be distributed in 11 municipalities in Huambo province.

**Table 2. Distribution Plan for Seed Kits for Use in the 2004/2005 Planting Season**

| PROVINCE | MUNICIPALITY | COMMUNE | NUMBER OF FAMILIES |
|---|---|---|---|
| **Huila (CLUSA)** | **Caconda/Caluquembe** | | **4,000** |
| **Huila (CARE)** | **Chipindo/Chicomba** | | **7,000** |
| **Bié (CARE/ AFRICARE** | **Chitembo/Catabola** | | **8,000 4,000** |
| **Benguela (CRS)** | | | **0** |
| **Kwanza Sul (SCF)** | | | **4,000** |
| **Huambo** | **Katchiungo** | **Chiumbo** | 1,000 |
| | **Katchiungo** | **Sede/Chinhama** | 8,000 |
| | **Total Katchiungo** | | **9,000** |
| | **Longonjo** | **Chlata/Catabola (ADRA-I)** | 8,000 |

| | | | |
|---|---|---|---|
| | **Longonjo** | **Sede/Lepi** | 2,000 |
| | **Total Longonjo** | | **10,000** |
| | **Tchinjenge** | **Tchiaca** | **5,000** |
| | **Ukuma** | **Mundundo/Cacoma** | **8,500** |
| | **Ekunha** | **Quipero** | **9,000** |
| | **Caala** | **Calenga/Catata** | **9,000** |
| | **Londuimbali** | **Sede** | 4,000 |
| | | **Galanga** | 2,000 |
| | | **Cumbila** | 3,000 |
| | | **Alto Huama** | 2,000 |
| | | **Ussoque** | 2,000 |
| | **Total Londuimbali** | | **13,000** |
| | **Bailundo** | **Bimbe** | 5,000 |
| | | **Sede (ADRA-N/WV)** | 6,000 |
| | | **Luvemba (ADRA-N)** | 6,000 |
| | | **Lunge** | 8,000 |
| | | **Cululo** | 11,000 |
| | **Total Bailundo** | | **34,000** |
| | **Huambo** | **Chipipa** | **5,000** |
| | **Tchicala Tchaloanga** | **Mbave** | 4,500 |
| | **Tchicala Tchaloanga (SCF-UK)** | **Sede/Sambo/Samboto** | 0 |
| | **Tchicala Tchaloanga** | **Sede/Sambo/Samboto** | 10,000 |
| | **Total Tchicala Tchaloanga** | | **14,500** |
| | **Mungo** | **Sede** | 3,000 |
| | | **CCambuengo** | 3,000 |
| | **Total Mungo** | | **6,000** |
| | **Total Huambo** | | **123,000** |
| | | **Overall Total** | **150,000** |

## R 2. Expanded community seed and planting material systems

### IR 2.1. Production of 991,000 tubers/cuttings of Irish potato and/or cassava and/or sweet potato.

The area under cassava and sweet potato multiplication did not change during this reporting period as cool/cold temperatures eliminated the possibility of significant crop growth during this quarter. The reduction in growth was most notable with cassava, which went dormant. The incidence of mealy bug infestation was estimated at 10% of plants. Actively growing cassava is not infected by mealy bugs, but becomes susceptible under stress, in this case low temperature stress coupled with drought.

Previous work in Kwanza Norte, Malange and Bengo had shown that Precoce de Angola is one of the best varieties for those areas; however, the variety does not seem to be as well adapted to the planalto. Therefore, an additional nursery of cassava has been planted at Chipipa to increase and evaluate new germplasm that may be better adapted to the planalto. An additional nursery of sweet potato has also been planted to evaluate new sources of sweet potato germplasm for adaptation to the planalto.

Romano and Boa Nova Regional Irish potatoes multiplication totalling 2.75 ha were planted last quarter in the municipalities of Londuimbali, Bailundo, Huambo, Chicala Tchilohanga and Caala and were harvested this quarter yielding a total of 7.3 Mt of tubers. A part of the production, 4.1 Mt of tubers, was distributed to 250 members of Farmers Associations in Huambo, Chipipa, Mbave and Cena for another season of multiplication followed by distribution of the tubers to the association members. The remaining 3.2 Mt of tubers are being stored under conditions that will stimulate sprouting of the tubers in time for planting another multiplication in January or February of 2005. A small multiplication of Romano and Boa Nova Regional totalling 0.4 ha was planted in August at Quinze, Bailundo Sede.

**Table 3: Areas under Sweet potato and Cassava Multiplication**

| Municipality | Location | Area (hectare) | | |
|---|---|---|---|---|
| | | Sweet potato | Cassava | Irish potato |
| Bailundo | Ganja | 2.40 | 4.00 | |
| | Chilume | | 0.36 | |
| | Quinze | | | 0.40 |
| | Cena | | | |
| | Tewa-tewa | 0.01 | | |
| | Luvemba | 0.10 | 0.12 | |
| | Lunge | 0.03 | 0.07 | |
| | **Subtotal Bai.** | **2.54** | **4.55** | **0.40** |
| Londuimbali | Sede | 0.10 | 2.00 | |
| | Humbi | | | |
| | Ussoque | | 0.50 | |
| | Galanga | 0.04 | 0.10 | |
| | Alto Hama | | 0.25 | |
| | **Subtotal Lon.** | **0.14** | **2.85** | |
| Huambo | Chipipa | | 0.06 | |
| | Dango | 0.10 | | |
| | **Subtotal Hua.** | **0.10** | **0.06** | |
| Chicala Tchilohanga | M´bave | | 0.06 | |
| Project Total | **4th Quarter** | **2.78** | **7.52** | **0.40** |
| | **3rd Quarter** | **2.78** | **7.52** | **2.75** |
| | **2nd Quarter** | **1.87** | **5.34** | **0.00** |

## IR 2.2. Multiplication and promotion of the important annual secondary crops: groundnuts, soybean, pea and wheat.

Two metric tons of wheat seed supplied by SeedCo was finally released from customs in July and was received in Huambo at the end of the month. The seed was received much too late to be planted this season in Bailundo and Londuimbali Sede as planned. However, a single 0.1 ha plot was planted in late July at Quinze, Bailundo to observe the performance of the variety under late planting. The rest of the seed will be held until next dry season when it will be planted for demonstrations and for the production of basic and certified seed.

## IR 2.3. 10,000 families receive cuttings/tubers of cassava and/or sweet potato and/or Irish potato prior to the 2004/2005 season

The ARP has cooperated with the Agricultural Research Station at Chianga in the multiplication of 6 ha of \Irish potatoes for remultiplication and/or distribution. Additionally, the program is cooperating with the Ministry of Agriculture in the multiplication of 208 ha of |Irish potatoes in Caala and Ecunha municipalities for distrtibution later this season.

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**IR 2.4. Establishment of at least 20 community based multiplication areas within 8 communes of the DRP project areas**

Community based seed multiplication and demonstration areas, called Polos de Desenvolvimentos, have been established at Bailundo, Londuimbali Sede, Dango, Kapunge, Chipipa and Mbave Sede. Farmers Associations have been involved in multiplication of Irish potatoes and growing of vegetables at these sites during this period. The vegetable production was part of the demonstration and on-farm trials program that was conducted to demonstrate new innovations to the farmers and enable farmers to rapidly gain experience with the new technologies in anticipation of rapid adoption.

**IR 2.5. At least 8,000 small-holder farmers are organized in associations and participate in Farmer Field Schools or receive technical assistance by IDA and WVA agronomists and/or technicians.**

During this reporting period, IDA, WV, local authorities and traditional leaders identified and/or registered returning displaced families for distribution of agricultural inputs. In addition to the registration of returning families, IDA and WV extension agents continued to strengthen the 111 farmers associations with a total of 4,506 members (52% women) in the Municipalities of Londuimbali, Bailundo and the comuna of Chipipa through a series of field days and training sessions that were conducted around demonstration plots.

The 33 demonstration plots involved various aspects of the production of various vegetable crops including onion, tomato, Chinese cabbage, kale, green pepper and carrot. The demonstrations were sited throughout the operational area and were used as focal points for 30 farmers field days and 129 training sessions on aspects of nursery establishment and care, transplanting seedlings produced, establishing appropriate plant density, timely weeding, use of organic (compost) and inorganic fertilizer, use of natural pesticides, provision of information on nutritional and commercial value of various vegetable crops, discussions of post-harvest processing and storage issues for various crops. Presentations were also given at each meeting to raise the level of awareness of HIV/AIDS issues. The attendance of 2,394 farmers (60% women) at the field days and 5,453 farmers (50% women) at the training sessions was considered very impressive.

**3. Rural seed production enterprises are capable of responding to national certified seed demand.**

## IR 3.1. At least 140 MT basic seed produced to allow ongoing seed multiplication for the 2004/05 season.

The results of basic seed multiplications at Chianga and the surrounding area are given in Table 4 below. All varieties listed with the exception of Shangwa wheat were grown at Chianga. The Shangwa wheat was sent by SeedCo for trials and increase, but arrived too late to be planted this season. Productions of SAM3 maize and three varieties of beans (Manteiga, Caluquembe and A286) were also grown with selected local producers. Irrigated productions of ZM521 and Matuba maize (20 ha each) as well as Manteiga bean (13 ha) have been contracted and will be harvested this coming December or January.

The production of maize and bean basic seed was sufficient for projected contract productions for the 2004/2005 production year. The Soprano soybean basic seed is sufficient for a very limited production of certified seed and a further basic seed increase. The groundnut, Mucabo Castanho, is a local variety that appears to be an admixture of one principal variety with small amounts of 2 other types. The seed was hand selected for trueness to type for the principal component and will be re-grown this coming season for another cycle of selection for trueness to type.

The present quantities of basic seed are sufficient for the coming season. To date 53.5% of the goal of 143.2 Mt has been produced and it is anticipated that the irrigated production will result in the goal being substantially achieved.

**Table 4. Basic seed produced in the 2003/2004 season**

| CROP | VARIETY | PRODUCTION GOAL (KG) | KG SEED PRODUCED | % OF GOAL |
|---|---|---|---|---|
| MAIZE | ZM521 | 65,000 | 38,600 | 59.3 |
| | MATUBA | 5,000 | 350 | 7.0 |
| | SAM3 | 30,000 | 26,100 | 87.0 |
| | AK93 | 200 | Not harvested | |
| | TOTAL | 100,200 | 65,050 | 64.9 |
| BEAN | MANTEIGA | 20,000 | 5250 | 26.3 |
| | A286 | 20,000 | 3000 | 15.0 |
| | COLOCHEMBE | | 500 | |
| | TOTAL | 40,000 | 8750 | 21.9 |
| SOYBEAN | SOPRANO | 500 | 222 | 44.4 |
| | LOCAL | 500 | 314 | 61.8 |
| | TOTAL | 1,000 | 536 | 53.6 |
| GROUNDNUT | MUCABO CASTANHO | 1000 (in shell) | 312 | 31.2 |
| WHEAT | SHANGWA | 1000 | 2000 (imported) | 200.0 |
| | | | | |
| Total tonnage | | 143,200 | 76,648 | 53.5 |

## IR 3.3. At least 30 rural seed production enterprises are established and strengthened with technical assistance.

The ASR III program was comprised of 33 seed production enterprises that received support in terms of technical assistance and guaranteed access to urea fertilizer. The experienced members of the group were substantially successful in meeting contract goals. Twenty-four of these members have seed production contracts this year and have the financial capacity to buy fertilizer for application at planting. This is a vast difference from last year when growers had no cash and had to be helped at each step of the process. The 29 members of the Seed Producers Club that is composed of the contract producers this year are enthusiastic for producing seed and have financial power sufficient to buy supplies for the coming planting season. Four of the members are new and actively worked to be included in the 2004/2005 contracts because they clearly see seed production as a profitable enterprise. The above discussion indicates that seed production in Huambo province has been established as a desirable and profitable enterprise.

**4. Commercial seed companies are able to respond to future demands for the supply of certified seed of improved crop varieties for the central highlands of Angola.**

Senior SeedCo staff from Botswana continue to work on the establishment of a legally registered, Angolan SeedCo company.

Seed contracts for the 2004/2005 season have been written for the production of 1,309 ha of ZM521 with an expected seed production of 1963 Mt valued at US$ 981,500 (producer level). The contracts are between members of the newly formed Seed Producers Club and SeedCo International in Botswana. When the Angolan subsidiary is finalized, the contracts will be transferred to the new company. WVA has facilitated the contracting process by identifying growers, providing SeedCo contracts to growers to be signed and collecting and holding the contracts for the Director of SeedCo International to sign on his last visit to Angola.

The signing of the seed contracts along with the identification of warehouse and office facilities in Huambo and the purchase of seed processing equipment nearly completes the establishment of an Angolan Seed Company that can start to meet national seed demand. The final step in the formation of an Angolan seed company will be the completion of the registration process and the appointment of a manager for the company. It is anticipated that the manager will be in place in the first quarter of 2005.

## B. Constraints Encountered and Adjustments for Results Achievement

A number of constraints were encountered:

**Inaccessibility of some growers due to poor road conditions and damaged bridges.** The condition of roads has progressively deteriorated, in part due to the heavy rains received from November until the end of February, and in part due to the increasing number of heavy trucks that are using the roads. The net result of these

two factors is the total destruction of the asphalt road surface and the substitution of massive ruts.

**Intra-association Conflicts:** Conflicts between members of an association can have disastrous effects, if the conflict results in seed not being delivered in a timely manner, or worse yet, not delivered at all. Approximately 100 tons of production was not acquired this year due to inter association conflicts. Consequently, associations will not be looked at favourably when the coming seasons contracts are written.

**Fertilizer Needs:** The need for nitrogen fertilizer is obvious from trial results this year. The response to nitrogen fertilizer is linear to at least 100 kg/ha (that was the highest rate) and it was economic for seed maize. We were unable to purchase a second shipment of urea as a result of delays in the availability of funding. Had the second shipment of urea been purchased and applied we would have easily met our target.

# V. Conclusion and Summary of Cost Effectiveness

World Vision has purchased a total of 2,685.8 Mt of certified maize seed (92.6% of 2,100Mt target) plus 58.9Mt of basic seed for a total purchase of 2,744.7Mt of seed (91.5% of 3,000 Mt target) from Contract growers. A total of 450.126 Mt of standard bean seed and 11.75 Mt of certified bean seed were purchased for a total of 461.875Mt of bean seed for distribution (128.3% of the 360 Mt target) plus 8.5Mt of basic seed for a grand total of 470.376 Mt of bean seed (117.6% of overall target of 400Mt of bean seed). Production of basic seed is presently 52.3% of target with three irrigated productions still to be harvested.

WVA conservatively estimates that every ton of maize seed produced locally saves US$ 315 and that every ton of bean seed produced locally saves US$ 250 as shown in Table 5:

**Table 5: Comparison of the Cost Effectiveness of Local Seed Production Compared to Imported Seed**

| Improved Crop Variety Crop | Imported Seed FOB Durban | Imported Seed CIF Huambo | Seed Recovery Contracted Price Huambo | Huambo Cost Saving over Imported Seed |
|---|---|---|---|---|
| Maize ZM521/SAM3 | 532 | 815 | 500 | 315 |
| Beans A286 | 750 | 1,050 | 800 | 250 |

Figures are US$/MT

In addition to a very significant cost saving in relation to imported seeds the advantages of local seed production also include:

- The seed grower has a guaranteed market that gives stability to farmer income;
- Stimulating the local economy through the injection of over US$ 4 million;
- Ability to supply seed in time for the “nacas” season in June/July as well as the rainy season in September/October thereby allowing returning families to produce a harvest during the “hunger period”;
- Producer prices for seed are higher than those for commercial crops helping to re-capitalize farmers after 30 years of civil conflict;
- Growing seed crops require good management which has a positive influence on overall farm management;
- Local seed production saves foreign exchange and has potential as a foreign exchange earner through the export of high quality seed;
- Creating employment and technical expertise for over 3,000 people in a fledgling seed production industry.

# ATTACHMENT 1: REPORTING LOGFRAME

| Project Activity Description | | Expected Outputs | First Quarter Results | Second Quarter Results | Third Quarter Results | Forth Quarter Results | Fifth Quarter Results |
|---|---|---|---|---|---|---|---|
| **IR 1.1 Seed producers multiply 3260 MT of commercial seed of maize and beans prior to 2004/05 rainy season.** | | | | | | | |
| Multiplication of seed of selected varieties | 1.1.1 Multiplication of selected varieties of maize | 2900 MT of SAM3, Matuba and ZM 521 | 1533 ha of maize contracted; 3066 tons anticipated. 12.7 MT of ZM521 purchased from Lobito producers for use in Nacas in May | 1732 ha of maize have been verified; urea was applied to 1,496 ha; projected yield is 3,000 MT. | Approximately 1500 ha of maize harvested, ears are drying prior to shelling. 237.4 MT of seed (8% of target) already delivered to WV warehouse. | All certified maize seed has been received for a total of 2685.8 Mt;<br><br>2535.1 Mt SAM3, 150.7 Mt Branco Redondo | |
| | 1.1.2 Multiplication of selected varieties of beans | 160 MT of A286 and selected manteiga varieties | | 103 ha of beans have been contracted with a projected yield of 41 MT. | 167 ha of beans contracted, but production very low due to drought. Estimated production is 30 MT. | A total of 11.75 Mt of bean seed received from producers.<br>4.7 Mt of Manteiga and 7.05 Mt of A286 | |
| | 1.1.3 Purchase of standard seed of selected varieties of beans | 200 MT of Local varieties | | The purchase of 150 MT is on-going | Purchase of 400 MT of selected bean seed is ongoing, 272.5 MT in hand (68% of target). | 173.9 Mt of bean seed purchased during the first buying season and 276.226 Mt purchased during the second season. For a total of 450.126 Mt of bean seed purchased. | |
| **IR 1.2 Distribution of seed of improved crop varieties to 150,000 families for 2004/05 season** | | | | | | | |
| Distribution of seeds of improved crops varieties | 1.2.1. – 50,000 families receive 17 kg of seed for planting in the Nacas for the dry season | 15 kg of maize and 2 kg beans distributed to 50,000 families by the end of August 2004 | | Bags, seed treatment and packing materials were ordered | Waiting for treating and bagging materials to arrive. | Reimbursed beans and maize, purchased from private funds, distributed to 20,000 families for the naccas season | |

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| | 1.2.2. – 100,000 families receive 24 kg of seed for planting in upland areas for the rainy season. | 21.5 kg of maize and 2.5 kg of beans distributed to 100,000 families by the end of October 2004 | | | | Distribution plans finalized for distribution of maize and bean seed to 150,000 (instead of 100,000) families for the Lavras or main season | |
| **IR 2.1. Production of 991,000 tubers/cuttings of Irish potato and/or cassava and/or sweet potato.** | | | | | | | |
| Production of vegetative propagated planting materials | 2.1.1 – Production of 100 tons of Irish potato seed | | | 2 MT of seed potato variety Romano was purchased and are being distributed for multiplication. | 2.75 ha of production now planted in Nacas areas. | From the 2.75 ha 7.3 MT of potato were produced of which 4.1 MT was distributed to 250 producers and 3.2 MT reserved for further multiplication. Production of 6 ha of Irish Potato at Chianga; production in cooperation with MINADER of 208 ha of seed potatoes in Caala and Ecunha. | |
| | 2.1.2. – Production of 101,000 25cm cassava stakes | | | 25,000 one m. Precose de Angola cassava stakes have been purchased in the Vila Franca area for multiplication purposes. 6.19 ha of cassava planted. | 7.52 ha of cassava multiplication. | 7.52 ha of cassava multiplication. | |
| | 2.1.3. – Production of 800,000 30cm sweet potato cuttings | | | 0.87 Ha area planted for each of 6 varieties at Chianga for further increase. | 2.78 ha of multiplication of sweet potato at the municipal level as well as .87 ha at Chianga | 2.78 ha of sweet potato multiplication in Bailundo and Londuimbali. | |

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| **IR 2.2. Multiplication and promotion of the important annual secondary crops: groundnut, soybean, pea and wheat.** | | | | | | | |
| Multiplication of seed of 4 of the more important secondary crops at the community level. | 2.2.1. Multiplication of groundnuts at 5 sites | | 0.7 ha planted at Ganja | 2.39 hectares planted at six sites | 2.39 ha to be harvested | Estimated 400 kg shelled | |
| | 2.2.2. Multiplication of soybean at 5 sites | | | 0.18 hectares planted at four sites | To be harvested | Estimated 500 kg seed | |
| | 2.2.3. Multiplication of other crops at 5 sites | | | 0.07 hectares of sunflower, 0.05 hectares of pea and 0.01 hectare of sesame planted | Harvested and seed stored for next season | | |
| | 2.2.4. Multiplication of wheat at 5 sites | | | | Waiting for seed to arrive from Seed Co. | Seed arrived too late for planting; will be held for planting next year. | |
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| **2.3. 10,000 families receive cuttings/tubers of cassava and /or sweet potato and/or Irish potato prior to the 2004/05 season.** | | | | | | | |
| Distribution of vegetative planting material to 10,000 families | 2.3.1. – 2020 families receive 50 25cm cassava stakes. | | | | | Distribution of material planned for 4,000 families for next quarter | |
| | 2.3.2. – 8000 families receive 100 30cm sweet potato cuttings. | | | | | Distribution of material planned for 2,500 families for next quarter | |
| | 2.3.3. – 10,000 families receive 10 kg of Irish potato tubers. | | | | | 250 growers received 16.1 Kg of tubers Distribution of material planned for 3,000 families for next quarter | |
| **IR 2.4. Establishment of at least 20 community based multiplication areas within 8 communes of the DRP project areas of major focus for resettlement and social integration.** | | | | | | | |
| | 2.4.1. - | | 14 multiplication | 20 multiplication | Multiplications on-going | 20 Multiplication areas are on-going | |

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| | | | areas have been established. | areas established for sweet potatao and for cassava. | | | |
| **IR 2.5. At least 8,000 small holder farmers are organized in associations/groups and participate in Farmer Field Schools or receive technical assistance by IDA and WVA agronomists and/or technicians.** | | | | | | | |
| | 2.5.1. – Promotion of an improved crop technology package and/or selection and storage techniques and/or sustainable soil fertility improvement practices. | | 33 field days have been held and 2278 farmers, 1548 women, have attended | Held 468 training sessions and 31 farmer field days covering topics such as: improved crop varieties; cultural practices; natural resources management; post harvest and seed saving and nutrition. Participants were 8,011 farmers (64% women) and 4,067 farmers (58% women), respectively. | 111 new farmers groups established with 4,506 farmers (52% women) and 108 existing groups with 2974 farmers (65% women) were strengthened. This represents a total of 7480 farmers in groups ( 93.5% of the target). 52 farmers field days and 167 training sessions were held covering the following topics: vegetable production issues, timely harvest and, seed selection of maize and beans and seed storage. | Continued to strengthen 111 farmers associations with 4,506 farmers (52% women). 30 farmers field days and 129 training sessions held, mainly focused on vegetable production. 5,453 farmers (50% women) attended these training sessions and 2,394 farmers (60% women) attended the farmer field days. | |
| **IR 3.1. At least 140 MT of basic seed produced to allow ongoing seed bulking for the 2004/05 season.** | | | | | | | |
| | 3.1.1 – Produce 100 MT of basic maize seed | | Planted 9 ha of ZM521, planted 7 ha of SAM3. | Another 5 ha of ZM521 planted as well as 1.5 ha of Matuba. | Harvest of maize multiplication plots just | Produced 32.8 mt of ZM521 seed and 26.1 mt of SAM3 seed with producers. Produced | |

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| | | | | 14MT of ZM521 held in stock | starting. 10.5 ha ZM 521, 7 ha SAM3 and 1.5 ha Matuba. | 5.8 mt of ZM521 and 0.35 mt of Matuba at Chianga. 20 ha each of ZM521 and Matuba planted under irrigation. 0.16 ha of AK93 under production at Chianga. | |
| | 3.1.2 – Produce 40 MT of basic bean seed | | | Planted 4 ha. of beans variety manteiga and .2ha of variety A286. | Beans harvest just starting and will be finished in July . | 8.5 Mt of bean seed purchased and 250 kg of Manteiga produced at Chianga. | |
| | 3.1.3. – Produce 1 MT of basic soybean seed | | | Planted 1.5 ha. of soybean | Harvest just starting. | 222 kg of Soprano and 314 kg of Local produced at Chianga, for a total of 536 kg. | |
| | 3.1.4. – Produce 1 MT of basic groundnut seed | | | Planted 1.5 ha. of groundnut. | Harvest will start in late July. | 312 kg of shelled seed of Macuba Castanho produced at Chianga. | |
| | 3.1.5. – Produce 1 MT of basic wheat seed | | | | Waiting for seed from Seed Co. | Seed arrived late and was not planted. | |
| **IR 3.2. Field Stations and Agronomic Posts at Huambo are functional with field gene banks.** | | | | | | | |
| | 3.2.1. – Cassava gene bank established at Chianga. | | 17 varieties planted at Chianga | 17 varieties planted at Chianga | Collection of additional local varieties in process. | Collection continuing. | |
| | 3.2.2. – Sweet potato gene bank established at Chianga. | | six varieties planted at Chianga | six varieties planted at Chianga | Collection of additional local varieties in process. | Collection continuing. | |
| | 3.2.3. Irish potato gene bank established at Chianga. | | 13 varieties in warehouse waiting to be planted when ready | 13 varieties in warehouse waiting to be planted when ready | Collection of additional local varieties in process. | Collection continuing. | |
| **IR 3.3. At least 30 rural seed production enterprises are established and strengthened with technical assistance.** | | | | | | | |

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| | 3.3.1. – Extensionists provide training on harvesting, selection and storage techniques | | | WV and Seed Co technicians working with 38 seed multiplication enterprises. | WVA and Seed Co technicians continue to provide support and advice to 38 seed producing enterprises. | Extensionists provided information to support harvest and post harvest handling of seed. | |
| | 3.3.2. – Sufficient basic seed supplied on an annual basis | | | | | Sufficient basic seed is in hand to plant 2004/2005 certified seed production. | |
| **3.4. At least 80 % of the certified seed requirements for improved crop varieties in the planalto are supplied by local seed multiplication enterprises for the 2004/05 season** | | | | | | | |
| | 3.4.1. Determine seed demand for planalto | | | | | FAO plans to supply seed for 38,000 families at the national level for the 2004/05 season. The ASR plans to supply seeds of improved crop varieties for 150,000 families. This is 80% of seed available for distribution at the national level. | |
| **3.5. Market transition strategy is defined for donor and private sector driven seed supply in Angola.** | | | | | | | |
| | 3.5.1 Mechanism established to determine demand. | | | | | Seed Co are registering as an Angolan seed company and have estimated commercial demand for the 2005/06 season at approximately 2,000 MT of open pollinated maize seed | |
| **3.6. Reduction in importation of seed into Angola.** | | | | | | | |
| | 3.6.1. Develop 3 year trend line for seed imports. | | | | | Awaiting a market survey | |
| | 3.6.2. | | | | | Seed imports in 2004 | |

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| | Determine seed importation for 2004/05 season. | | | | | were less than 80% of total seed distributions. | |
| **4.1. Links established between at least one commercial seed company and rural producers of certified seed.** | | | | | | | |
| | 4.1.1 – Regional or international seed company selected to partner with SRP seed producers to form a national commercial seed production enterprise. | | Seed Co Int'l has been identified as company to partner with SRP and to initiate development of an Angolan commercial seed production and sales company. | The process of legally establishing Seed Co as an Angolan company is ongoing. | Paperwork for establishing company in process. Staff have discussed pending seed legislation with SENSE. | Registration is in process for Seed Co Angola Ltd. | |
| | 4.1.2 – Some seed for the 2004/05 season will be supplied under the brand name of a commercial seed company. | | | A mobile seed plant is being built in Zimbabwe for shipment to Huambo. | Awaiting completion of plant. | Mobile seed plant to be delivered after company registration completed. Limited quantities of seed brought in to do demonstrations of SeedCo material, maize, beans and soybeans. | |
| | 4.1.3. – Commercial seed company is able to supply nationally produced seeds of appropriate crop varieties to meet market demand, | | | Contacts made between Seed Co and Banco Sol to provide finance for seed producers for the 2004/05 season. | Seed Co standard contract for the production of open pollinated varieties of maize seed has been translated into Portuguese in anticipation of use in July/August. | Seed contracts have been signed by Seed Co with 30 producers for a total production area of 1,309 ha. of ZM521. | |

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| | emergency donors and private sector, from the 2005/06 season forward. | | | | | | |